

Claims

What is claimed is:

1. A database management system comprising:
a lock manager that acquires a parent lock and a child lock on resource(s) of a database, the parent lock has a reference count of the child lock; and the parent lock is released upon release of child locks associated therewith.
2. The database management system of claim 1, the parent lock is released upon the reference count attainment of a zero value.
3. The database management system of claim 1, further comprising a lock monitoring system that monitors the reference count of child locks associated with the parent lock.
4. The database management system of claim 3, as each child lock is released the reference count of the parent lock decrements by a value of one.
5. The database management system of claim 1 further comprising a lock hierarchy designated by the lock manager.
6. The database management system of claim 5, the lock hierarchy comprises at least one of a database lock, page lock, table lock and row lock.
7. The database management system of claim 5 further comprising a page scan optimization that maintains a last child lock until a next one is acquired.
8. The database management system of claim 1, the parent lock is an intent lock that protects resources at lower levels.

9. The database management system of claim 5, the child lock is at least one of an exclusive, update and shared lock at a level of the hierarchy.
10. The database management system of claim 1, the reference count is performed upon completion of at least one of a scan, query or operation.
11. The database management system of claim 1 further comprising a pointer that can guide a release operation from each child lock to a respective parent lock.
12. A lock control method in a database management comprising:
defining a parent-child relation ship among a plurality of locks in a lock hierarchy
reference counting a child lock associated with a parent lock, such that a parent lock maintains a count reference of respective child locks associated therewith; and,
releasing a parent lock upon a release of all the respective child locks associated therewith.
13. The method of claim 12 the defining act further comprising arranging a top-down lock granularity based on logical or physical granularities of objects stored in the data base.
14. The method of claim 12 further comprising pointing to a parent lock upon releasing a respective child lock associated therewith.
15. The method of claim 12 further comprising reference counting child locks directly associated with the parent lock.
16. The method of claim 12 further comprising acquiring an intent lock at least in one of a table level, page level and database level.
17. The method of claim 12 further comprising maintaining a reference count within a structure of the parent lock.

18. The method of claim 12 further comprising scoping the reference counting of a lock to a transaction.
19. A computer readable medium having stored thereon computer executable instructions for carrying out the method of claim 12.
20. A database management system comprising:
locking means for locking a resource on a database, and
means for determining a lifetime of the locking means.
21. A lock control method in a database management comprising:
reference counting child locks associated with a parent lock to obtain a reference count;
releasing a child lock; and
decrementing the reference count by a value of one.
22. The method of claim 21 further comprising releasing the parent lock upon the reference count reaching a zero value.
23. The method of claim 21 further comprising monitoring the reference count.
24. The method of claim 21 further comprising identifying the parent lock *via* a pointer.
25. A computer readable medium having stored thereon computer executable instructions for carrying out the method of claim 21.

26. A computer-readable medium having stored thereon a data structure comprising:
a computer executable component that acquires parent locks and child locks on a database resource, the parent lock with a reference count of the child lock; the parent lock released upon the reference count attainment of a zero value.
27. The computer readable medium of claim 26 further comprising a further computer executable component that monitors the reference count.
28. The computer readable medium of claim 26 further comprising a forwarding pointer device that identifies a parent lock associated with a released child lock.
29. The computer readable medium of claim 26 further comprising probabilistic classification models.
30. The computer readable medium of claim 26, the reference count is the count of direct child locks associated with the parent lock.
31. A system for releasing locks comprising:
guarding means for guarding a logical consistency of a database during performance of concurrent transactions acting thereon ; and
means for determining a lifetime of the guarding means.